We Claim:

1. A system (200) for facilitating extension and retraction operations, the system characterized by comprising:

a telescopic assembly located at the periphery of a housing (216) configured in chaser vehicle (202-1) and target vehicle (202-2), the telescopic assembly comprising:

at least three cylindrical hollow tubes (210) spaced equiangularly about the housing (216), each hollow tube (210) coupled to a ball assembly (226) and is selectively movable between a retracted position and extended position, wherein the ball assembly (226) comprising:

a main retainer (232);

one or more profiled grooves in a ball retainer (230) coupled to the main retainer, one or more profiled grooves that accommodate spherical balls (234); and

a leaf spring (236) coupled to the spherical balls (234) to provide a force such that the ball retainer with the spherical balls provides sufficient lateral stiffness and is able to move freely within a grooved pathway provided on at least three cylindrical hollow tubes; and

a non-back drivable motorized actuator (214) coupled to the at least three cylindrical hollow tubes (210) through a wire rope (212), the motorized actuator, upon operation, is adapted to drive the at least three cylindrical hollow tubes (210) to facilitate retraction and extended position.

2. The system as claimed in claim 1, wherein the leaf spring (236) attached with the spherical ball (234) which moves on the one or more profiled grooves to provide a self-aligned preloaded roller joint to reduce friction, provide requisite lateral stiffness and ensure nominal functioning under extreme temperatures.

3. The system as claimed in claim 1, wherein the telescopic assembly accommodates a compression spring inside the telescopic assembly, the compression spring provides a uniform upward force to act on the at least three cylindrical hollow tubes (210) to be in the extended position with a pre-defined preload for facilitating low impact docking of chaser vehicle (202-1) from the target vehicle (202-2).

4. The system as claimed in claim 1, wherein the at least three cylindrical hollow tubes (210) connected by a C-channel (242) to assist the uniform linear extension and retraction of the at least three cylindrical hollow tubes (210), wherein the C- channel is held rigidly against launch acceleration loads using at least three hard stoppers (244) connected to the at least three cylindrical hollow tubes at the middle portion in the retracted configuration.

5. The system as claimed in claim 1, wherein the at least three cylindrical hollow tubes (210) comprise stoppers (240) at appropriate location on outer and middle portion of the at least three cylindrical hollow tubes to maintain requisite extension and preload in the capture ring (208).

6. The system as claimed in claim 1, wherein the compression spring provides a uniform upward force to act on the at least three cylindrical hollow tubes (210) from the retracted position post docking completion, facilitating the undocking of the chaser vehicle (202-1) from the target vehicle (202-2) and eliminates the need of separate ejection mechanism.

7. The system as claimed in claim 1, wherein the at least three cylindrical hollow tubes (210) are held in the retracted position by three separate wire loops (212) individually connected to a spool (508) of the non-back drivable motorized actuator (214) which avoids additional hold down mechanisms.

8. The system as claimed in claim 1, wherein at least one telescopic assembly comprises indication switch (300) that actuates and de-actuates the non-back drivable motorized actuator at the correct position and provide telemetry for the retracted position and the extended position.

9. The system as claimed in claim 1, wherein the spherical balls (234) rolling in the one or more profiled grooves prevent rotation of the at least three cylindrical hollow tubes relative to each other.

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